

Amendments to Claims

Please **cancel claims 13-24** without prejudice.

Please **add claims 25-49** as follows:

- 25.(New) A water cleaning device for removing fine particles from water, the device comprising:
- a. an elongated housing forming a main body and having an impervious wall enclosing an interior cavity that extends through the housing;
 - b. a plurality of flexible fibers extending within the cavity for contacting flowing water and removing fine particles from the water without separating a permeate from the water;
 - c. the housing including a pair of opposed end portions wherein disposed adjacent a first end portion is a water inlet for receiving a stream of water, the inlet including an annular water jacket extending around the first end portion of the housing and being in fluid communication with the cavity for distributing the water within the cavity;
 - d. a header jacket disposed adjacent an opposite second end portion of the housing;
 - e. the header jacket including a clarified water outlet for discharging a clarified water from the cavity;
 - f. the header jacket also including a waste outlet for discharging a concentrated waste from the cavity;

- g. a gas inlet for directing a gas into the cavity such that the gas may contact the fibers and clean some of the fine particles from the fibers;
- h. in one mode of operation of the water cleaning device, the water is directed through the cavity and some of the fine particles are removed from the water producing the clarified water that is discharged from the cavity via the clarified water outlet; and
- i. in another mode of operation of the water cleaning device, both the gas and the water are directed through the cavity and some of the fine particles are cleaned from the fibers producing the concentrated waste that is discharged from the cavity through the waste outlet.

26. (New) The water cleaning device of claim 25 wherein first ends of the fibers are secured to a media fixing plate disposed near a first end of the housing and wherein second ends of the fibers are disposed near a second end of the housing, the second ends of the fibers being unattached and free to move about in the cavity as water passes through the cavity; and wherein the fibers are non-tubular and non-membranous.

27. (New) The water cleaning device of claim 25 wherein one or more of the fibers is formed from a material selected from a group including polyamide, polyester, and polypropylene.

28. (New) The water cleaning device of claim 26 including a density control plate having an annular shape and disposed within the housing between the media fixing plate and the annular water jacket for increasing a density of the fibers between the media

fixing plate and the water jacket and for generally inhibiting the water from flowing to the media fixing plate.

- 29.(New) The water cleaning device of claim 25 including one or more openings disposed in a member within the housing for conducting a gas into the cavity and dispersing gas within the cavity and about the fibers.
- 30.(New) The water cleaning device of claim 29 wherein the one or more openings form an array of openings disposed in a media fixing plate, the array of openings being disposed adjacent ends of the fibers that are secured in the plate and which act to disperse the gas about the fibers.
- 31.(New) The water cleaning device of claim 25 wherein an array of openings is disposed in a circumferential band around the outer wall of the housing, the array of openings in the outer wall being aligned with the annular water jacket to conduct the water into the cavity and to distribute the water within the cavity.
- 32.(New) The water cleaning device of claim 25 including a porous chamber in fluid communication with the clarified water outlet, the chamber disposed in the second end portion of the housing and projecting in among the fibers to receive the clarified water from the cavity.
- 33.(New) The water cleaning device of claim 32 wherein a volume of the porous chamber is about 10% to about 50% of a volume of the cavity.
- 34.(New) A water cleaning device for removing fine particles from water directed from a water source, the device comprising:
- a. an elongated housing forming a main body and having an impervious outer wall comprising a substantial portion of the main body;

- b. an interior cavity extending through the housing and being substantially enclosed within the outer wall;
- c. a plurality of flexible fibers extending within the cavity for contacting flowing water and removing fine particles from the water without separating a permeate from the water;
- d. first and second end portions of the housing each disposed adjacent opposite first and second ends of the housing;
- e. a water inlet disposed on the first end portion for directing the water into the cavity;
- f. the second end portion of the housing, including a clarified water outlet for discharging clarified water from the cavity and a waste outlet for discharging a concentrated waste from the cavity;
- g. a gas inlet disposed adjacent the first end portion for directing a gas into the cavity for contacting the fibers and for cleaning some of the fine particles from the fibers;
- h. in one mode of operation of the water cleaning device, the water is directed through the cavity and some of the fine particles are removed from the water, producing the clarified water that is discharged via the clarified water outlet; and
- i. in another mode of operation of the water cleaning device, both the gas and the water are directed through the cavity and some of the fine particles are cleaned from the fibers producing the concentrated waste that is discharged via the waste outlet.

35. (New) The water cleaning device of claim 34 wherein first ends of the fibers are secured to a media fixing plate disposed near the first end of the housing and wherein second ends of the fibers are disposed near the second end of the housing, and are unattached and free to move about; and wherein the fibers are non-tubular and non-membranous.
36. (New) The water cleaning device of claim 34 including a density control plate having an annular shape and disposed within the housing between a media fixing plate and the water inlet, the density control plate increasing a density of the fibers between the plate and the water inlet.
37. (New) The water cleaning device of claim 34 including on or more openings in a member disposed within the housing for conducting the gas into the cavity and dispersing the gas about the fibers.
38. (New) The water cleaning device of claim 34 including an array of openings in a media fixing plate disposed within the housing, the plate having ends of the fibers secured thereto, the array of openings disposed adjacent the ends of the fibers for conducting the gas into the cavity and dispersing the gas about the fibers.
39. (New) The water cleaning device of claim 34 wherein an array of openings is disposed in a circumferential band around the outer wall of the housing, the array of openings being aligned with the water inlet which includes an annular water jacket to conduct the water into the cavity and to distribute the water within the cavity.
40. (New) The water cleaning device of claim 34 including a chamber having an array of openings in an outer wall thereof, the chamber in fluid communication with the

clarified water outlet, and the chamber disposed in the second end portion of the housing and projecting in among the fibers for receiving the clarified water.

- 41.(New) A method of treating water having fine particles therein with a device having a treatment cavity, a gas inlet and a water inlet disposed on one portion of the device, and a clarified water outlet and a concentrated waste outlet disposed on another portion of the device, the method including:
- a. closing the concentrated waste outlet and opening the clarified water outlet;
 - b. directing the water into the water inlet and through the treatment cavity;
 - c. as the water is passed through the treatment cavity, flowing the water adjacent a plurality of flexible fibers extending within the treatment cavity and removing fine particles from the water without separating a permeate from the water;
 - d. discharging the clarified water out the clarified water outlet;
 - e. closing the clarified water outlet and opening the concentrated waste outlet;
 - f. injecting gas into the treatment cavity and mixing the gas with the water having the fine particles to form a gas-water mixture;
 - g. passing the gas-water mixture through the treatment cavity and contacting the fibers and dislodging the fine particles captured on the fibers, producing a concentrated waste including the gas-water mixture and the dislodged fine particles; and
 - h. discharging the concentrated waste through the concentrated waste outlet.
- 42.(New) The method of claim 41 wherein respective fibers include opposed ends, and wherein one end of each fiber is fixed while the other end is unattached and free to

move about as the water or gas-water mixture passes through the treatment cavity;
and wherein the fibers are non-tubular and non-membranous.

- 43.(New) The method of claim 41 including extending an annular device around a portion of the fibers and generally compressing the fibers in an area of the treatment cavity.
- 44.(New) The method of claim 41 directing the gas into the cavity through one or more openings disposed adjacent the fibers.
- 45.(New) The method of claim 41 including directing the gas into the treatment cavity via an array of openings disposed in a fiber fixing plate, the array of openings being adjacent fiber ends that are secured to the fiber fixing plate.
- 46.(New) The method of claim 41 wherein directing the water into the treatment cavity includes directing the water through an array of openings in a circumferential band extending around an outer wall that surrounds the treatment cavity and distributing the water within the cavity.
- 47.(New) The method of claim 41 including directing the clarified water into a porous chamber in fluid communication with the clarified water outlet, the chamber disposed in the treatment cavity and projecting in among the fibers when the water or gas-water mixture is passing through the treatment cavity.
- 48.(New) The method of claim 41 including generating turbulence in the treatment cavity by contacting the water with the fibers.
- 49.(New) The method of claim 41 wherein the treatment cavity is formed by an elongated housing and wherein the gas inlet and water inlet are disposed adjacent one end portion of the housing and the clarified water outlet and concentrated waste

outlet are disposed adjacent an opposite end portion of the housing, and wherein the housing is cylindrical and the fibers extend generally longitudinally through the cavity as the water passes in contact with the fibers.